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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/424,300 | 03/13/2000 | YOSHIKAZU KANEKO | Q56361 | 7799 |
| 7590 04/02/2004 | | | EXAMINER | |
| SUGHRUE MION ZINN MACPEAK & SEAS 2100 PENNSYLVANIA AVENUE NW WASHINGTON, DC 200373213 | | | PIZIALI, ANDREW T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1771 | |

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 09/424,300 | Applicant(s) KANEKO ET AL. | |
| | Examiner Andrew T Piziali | Art Unit 1771 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/7/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-12 is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on 8/6/03 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,888,321 to Kazama.

Kazama discloses a steel wire in a cord having a construction of core and sheath (see entire document including column 4, lines 19-25), the steel wire comprising a wire diameter ranging from 0.1 to 0.4 mm (column 6, lines 20-33) obtained by subjecting a high-carbon steel wire material having a carbon content ranging from 0.80 to 0.89 in weight to heat treatment and

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wire drawing (column 3, lines 35-50). Kazama discloses that the upper limit of the tensile strength of the steel wire satisfies the formula $TS \geq -1960D + 4214$ (column 4, lines 35-40) where TS is the tensile strength in N/mm^2 and D is the diameter of the steel wire in mm. When $D=0.3mm$ formula $TS \geq -1960D + 4214$ results in a $TS \geq 3626 N/mm^2$, formula $TS \geq 2250-1450\log D$ results in a $TS \geq 3008 N/mm^2$, and formula $TS \geq 2750-1450\log D$ results in a $TS \geq 3508 N/mm^2$. Kazama satisfies the formula $TS \geq 2250-1450\log D$ and the formula $TS \geq 2750-1450\log D$ when $D=0.3mm$.

Kazama uses drawing dies ranging from 8-10 degrees with a bearing length of $0.3D$ (column 4, lines 6-18). Kazama also uses a final die area reduction of 1.2 to 3.9 % and immediately after passing through the final die the steel wire temperature is maintained below $150^\circ C$ (column 4, lines 6-18). Kazama uses a torsion test in which tension is lightly applied while the steel wire is twisted in one direction and then twisted in the reverse direction (column 7, lines 43-58). Kazama discloses that the steel wire possess not only a high tensile strength but also a high toughness along with good twisting efficiency and good fatigue resistance (column 4, lines 53-61). Kazama does not mention a breaking torsion value or a repeated torsion value, with or without 10% of the total volume removed from the surface, however, due to the substantially identical steel wire composition and manufacturing method The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark

Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Kazama does not specifically mention preforming the steel wire to a minimum radius of curvature of 10 to 60 times its diameter, but considering the substantially identical wire diameter, cord diameter, and winding pitch taught by Kazama (see entire document including column 4, lines 19-25, column 6, lines 20-33, and column 9, lines 3-10), compared to the wire diameter, cord diameter, and winding pitch taught by the current applicant, it appears that the wire of Kazama possesses a minimum radius of curvature of 10 to 60 times its diameter.

The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Response to Arguments

4. Applicant's arguments filed 8/6/03 have been fully considered but they are not persuasive.

The applicant asserts that Kazama fails to teach or suggest a steel wire in a cord having a

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construction of core and sheath. The examiner respectfully disagrees. Kazama discloses a steel wire in a cord having a construction of core and sheath (see column 4, lines 19-25).

Allowable Subject Matter

5. Claims 5-12 are allowed.

6. The following is an examiner's statement of reasons for allowance:

Japanese Patent No. 7-305285 to Takayuki is the best art disclosing a method of manufacturing a high-carbon steel wire with a diameter of 0.2 to 0.6mm with heat treatment and characterized in that the step of drawing is carried out according to steps 1-3 and 5 of applicants disclosure in claim 5. Takayuki also discloses the strain at the final die to be 4.0. The prior art fails to teach or suggest using a reduction per die set from 4% to $(-8.3\epsilon + 40.6)$ for the final die. It would not have been obvious to one having ordinary skill in the art at the time the invention was made to use a reduction per die set from 4% to $(-8.3\epsilon + 40.6)$ for the final die, because it was not known that the deterioration of ductility by age hardening can be controlled by keeping the concentration of drawing strain at the surface of the steel wire within proper degree by setting the reduction of the final die within a range of 4% to $(-8.3\epsilon + 40.6)$.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

atp

gtp 3/20/04

ANDREW T. PIZALI
PATENT EXAMINER

Terrel Morris
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TECHNOLOGY CENTER 1700